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ting the orbicular or elliptical erumpent subpulverulent disk; asci .0008 to .001 in. long; spores allantoid .00024 to .0003 in. long.

Bark of balsam fir, *Abies balsamea*. Labrador. Waghorne.

This fungus is allied to but differs from *Valsa Friesii* in its larger pustules, more numerous perithecia and shorter asci and spores. The color of the disk is grayish or grayish-green.

HYGROPHORUS NIGRIDIUS. Pileus fleshy, convex, obtuse or subumbonate, glabrous, grayish-brown or black-brown, often a little darker in the center, flesh white; lamellae distant, decurrent, white; stem rather slender, solid, brownish, white at the top; spores elliptical, .0004 to .0005 in. long, .00024 to .0003 broad.

Pileus 1 to 2 in. broad; stem 1 to 2 in. long, 2 to 4 lines thick.

Gregarious or rarely two or three united at the base. Pine and fir tree woods. Prince Edwards Island. October and November. J. MacSwain.

This fungus differs from *H. caprinus* Fr. in its smaller size, glabrous pileus and larger spores. A description of it was published in the Country Gentleman of November 29, 1894, but one is here given that it may be more readily accessible to mycologists.

In many of the foregoing descriptions I have been obliged to give the colors indicated by the dried specimens. It is not likely therefore that they will in all cases agree rigidly with the colors of the fresh plant.

Hypericum boreale (Britton) and related Species.

BY EUGENE P. BICKNELL.

At York Harbor, Maine, *Hypericum Canadense* L. abounds, presenting itself in varying forms; *Hypericum majus* (Gray) Britton frequently grows with it, either strongly typical or with aberrant tendency; *Hypericum mutilum* L. is common also.

More characteristic of the region, however, than any of these is a small species, which grows in abundance in open situations, about the muddy borders of pools or in moist sandy soil, and shows some interesting lines of variation. Some fragmentary specimens, collected in 1888, were pronounced by Dr. Britton to be the little known *Hypericum Canadense* var. *minimum*,* a plant which had never been well understood, but which, on account of its narrow leaves, had been associated unhesitatingly with *H. Canadense*. Now, however, the study of a full series of specimens, collected at York Harbor in August, shows clearly that, though in one of its forms the plant certainly bears a strong general resemblance to forms of *H. Canadense*, its real affinity is with *H. mutilum*, to which, indeed, it is nearly allied. Certain noteworthy differences, however, forbid its direct reference to that species, and give it an identity which is unmistakable when once the plant is understood. These differences, moreover, prove to be constant over a wide area; at least there is nothing to discredit them in specimens which show the plant to have an extensive distribution, ranging along the coast and islands of Maine into Nova Scotia, and westward through Canada. That it also extends southward in the mountains is attested by a specimen from Luzerne county, Pennsylvania, and one from an elevated station in northern New Jersey.

It is to be noted of this New Jersey specimen that it shows a near approach to *mutilum* and may, perhaps, be taken as presumptive evidence that the two plants intergrade. If such be the fact, however, it is, after all, only a part of the complementary fact that elsewhere the same plants have reached a condition of complete separation. The sub-species of one region has become a full species elsewhere in its range.

In cases such as this of complete differentiation in one region, how are we to deal with intergradation in another? It is practicable to recognize a plant at the same time as a variety and as a species according as to whether it occurs in one or in another part of its habitat? It can only be said that if this condition of things exists in nature we cannot refuse to recognize it, and shall have to adjust our methods to it as best we may. But while we cannot dissect the facts of nature too delicately for certain purposes of botanical study, for other, more general purposes, we can often reach better practical results with duller tools. For general pur-

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*Dr. Britton has since shown that the name *minimum* of Choisy is not properly applicable to this plant, and has therefore designated it *Hypericum Canadense* var. *boreale*. Bull. Torr. Club, 18 : 365. 1891.

poses, therefore, what shall be our practice in cases similar to the one before us? The older idea would appear to have been, Somewhere a variety, everywhere a variety ; with equal, as it seems to me with better reason, it may be held, Somewhere a species, everywhere a species; that is to say, everywhere where individuals of such a *regional species* are found upholding the characters which distinguish their type in the region of its perfect emancipation. Let *intermediates* be frankly accepted as intermediates, not feared or avoided as elements of confusion or as being necessarily prejudicial to this or that otherwise unexceptionable " species "; let them be sought for and studied; in time we may come to learn from them, in one case perhaps, that they represent weakening links between diverging forms; in another, that they afford indices to old relationships; in yet another, it may be that they mark the first steps in a union of two allied species into a broader single one.

Upon these views the plant here defined is named with specific rank as *Hypericum boreale* (Britton). The conceptions of other botanists may require them to write *Hpericum mutilum boreale*, or, if even more conservative, *Hypericum mutilum* var. *boreale*. In any case, the fact of nature sought to be expressed is the same.

HYPERICUM BOREALE (Britton). From 1–18 in. high, mostly 3–8 in.; stem obscurely quadrangular to terete, upright from an assurgent, or reclined and rooting base, rarely erect from the root, simple or cymose-branched. Main stem-leaves from elliptic-linear to narrowly oblong and elliptic-oblong, or one or two pairs in the cyme sometimes slightly broadened to a sub-clasping base, those of the lower part of the stem much reduced and crowded, oval to short-oblong, at the very base of the stem sometimes thickened and transformed into small lanceolate overlapping scales. The small form of the plant which has been known as *H. Canadense* var. *minimum*, has a simple stem, leafy-cymulose at the top, bearing many pairs of nearly linear or linear-oblong leaves, sometimes no larger than 3″–4″ × 1″. Another small form has fewer short-oblong obtusely rounded, small leaves, mostly narrowed to the base, but the pair which subtends the cymule sometimes broadened and sub-clasping. Larger plants may be cymose-branched, even from the base, with narrowly oblong or elliptic leaves reaching an extreme size of 16″ × 3″ or 4″. Cymes leafy-bracted throughout, varying from very simple and few-flowered to compound and contractedly many-flowered. Bracts foliaceous throughout, oblong to linear, obtuse. Sepals linear to oblong-linear, obtuse. Flowers about 2½″ broad. Capsules 2″–2½″ long by 1″–1¼″ broad, oblong, rounded or abruptly contracted to the apiculate apex, membranaceous and strongly cross-wrinkled, the exposed portion deep purplish in color almost from the first, and conspicuously exceeding the sepals. Seeds relatively large, .03 inch long, linear, 3–5 times longer than broad, pale, strongly longitudinally furrowed and minutely cross-lined, under the microscope suggesting a miniature ear of corn.*

As compared with *boreale*, *mutilum*, though having sometimes the assurgent base of the stem, is commonly erect from the root, the stem distinctly quadrangular, the stem-leaves, which reach an extreme size of 14′×′7″, are throughout larger and much broader, and vary in shape from ovate-orbicular to ovate-oblong, often gradually narrowed from the broadly-dilated base to the obtuse tip, sometimes oblong, but always with a broad sub-clasping base; 5–7-nerved, thin and much reticulated instead of thicker and often 3-nerved, with the reticulation sparse, obscure or wanting; the cymes more compound and delicately dichotomous, with minute and setaceous instead of leafy bracts; the capsule smaller, even only half the size (1′–2″ × ½″–1″), mostly ovoid- or oblong-conical, often but little exceeding the sepals, commonly greenish or, in age, greenish-purple, instead of early deep purple; the seeds smaller, oblong, only 2–3 times longer than broad, yellowish-brown and shining instead of dull whitish, very minutely cross-wrinkled, not furrowed, but sometimes indistinctly striate.

The seeds of *boreale*, while differing strikingly from those of *mutilum*, resemble somewhat those of *Canadense*, which, though shorter, are of the same pale color, and are evidently striate—striate-angled, however, rather than furrowed. The seeds of *majus* prove to differ from those of *Canadense* in respect of size, color and surface character, much as those of *mutilum* differ from those of *boreale*. The broad-based leaves of *majus* and *mutilum* here comes to mind and suggests a sort of parallelism between *Canadense* and *majus* on the one hand and *boreale* and *mutilum* on the other.

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* Besides the York Harbor series, specimens of *Hypericum boreale* have been examined, as follows:

Somesville, Mount Desert Island, Maine, Aug. 25, 1890, Edward L. Rand.

Prince Edward's Island, Aug. 2, 1888, John Macoun.

St. John's, Newfoundland, Aug. 6, 1894, B. L. Robinson and H. Schrenk.

Notre Dame du Lac, Termiscouta Co., Canada, Aug. 13, 1887, John I. Northrop.

"Vermont."

Lily Lake, Luzerne Co., Pa, Aug. 16, 1889, John K. Small.

Morris Pond, New Jersey, Sept. 11, 1890, N. L. Britton.

This last is the apparently intermediate specimen already referred to. It is the only example seen in which there are any minute bracts in the cymes.

Hooker's description of *H. quinquenervium* of Walter, in Fl. Bor. Am. 1: 110, clearly refers to *H. boreale*, as here defined, and as clearly excludes true *H. mutilum*, of which *quinquenervium* is a synonym. The habitat of the plant is given as "Canada to Lake Winipeg. Dr. Richardson. Frequent in upper Canada."

It may be noted that *majus* has the smallest and narrowest seeds of the entire series; *boreale*, the smallest plant of all, having the largest seeds.

The relationship between *Canadense* and *boreale* needs no extented comment. It is true that from the leaves alone some forms of each plant would scarcely be regarded as different, but the character of the inflorescence of each is perfectly destinctive: *Canadense* will be found to differ constantly in its more strict and compound, minutely bracted cymes, with more or less tapering capsules and calyx lobes.

It has just been said that forms of *Canadense* cannot by the leaves alone be separated from forms of *boreale*. This is equally true of *majus*. All three species assume in some of their states a narrowly oblong form of leaf which is practically the same in all. In specimens of *majus*, however, which exhibit this form of leaf, the other distinctive characters remain unimpaired: it maintains the large pod, long tapering sepals, and characteristic seeds. Not so, however, *Canadense*. In the oblong-leaved form collected at York Harbor, there is a general difference also in the inflorescence and capsules; the cyme is less strict and more delicately branched, even becoming somewhat diffuse, and the short-pedicelled capsules are more numerous and crowded, and only about half the usual size, 1″–2″ instead of 2″–3″ long; the seeds also take on a darker color, and seem to approach those of *mutilum*· Indeed, some examples of this form have much similarity to less branched forms of *mutilum*, and actually seem to be implicated somehow with that species. In fact, in the case of some immature specimens, it can scarely be said to which species they belong.

Compared with fully typical *Canadense*, this form presents a striking contrast, and in studying the group I have found it convenient to label it var. *parvicarpum*.